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An Introduction to Analytical Text Structures

By: Amy Rukea Stempel (2010)

Many students are used to writing narratives — stories, description, even poetry, but have little experience with analytical writing. This article is an introduction to six analytical text structures, useful across content areas. See also [Analytical Writing in the Content Areas](#).

In this article:

- [Examples of topics for each text structure](#)
- [Tips for writing each text structure](#)
- [About the author](#)
- [About the book](#)

Introduction

Students in middle and high school need help structuring their analytical thinking and writing as they are often expected to write about, explain, and analyze fact-based concepts — concepts they can't make up. Analytical writing in all content areas falls into the following six categories. In a longer non-fiction work, such as a book, the author will mix things up, using text structures within text structures:

- **Compare-Contrast:** A compare-contrast essay focuses on the similarities and differences between at least two objects or ideas. The purpose is to develop the relationship between them and, in the process, explain both in detail.
- **Cause-Effect:** A cause-effect essay first presents a reason or motive for an event, situation, or trend and then explains its result or consequence.
- **Problem-Solution:** A problem-solution essay informs readers about a complex, real-world, philosophical problem (or related problems), followed by actions that could be taken to remedy the problem.
- **Concept-Definition (descriptive writing):** A concept-definition essay provides a personal, but still factually complete and correct, understanding of a particular concept or term. The essay conveys what research and experience have taught the writer (what the concept *is not* is often also part of the definition).
- **Goal-Action-Outcome (process or procedural writing):** A goal-action-outcome essay either tells the reader how to do something or describes how something is done. Math explanations and science lab reports are good examples of goal-action-outcome writing.

- **Proposition-Support (persuasive writing):** A proposition-support essay uses logic, reason, and supporting data to argue that one idea is more legitimate than another. The argument must include sound reasoning and reliable external evidence, stating facts, giving logical reasons, using examples, and quoting reliable experts and original sources.

Examples of topics for each analytical text structure

Topic	Definition	Examples of Topics
Compare-Contrast (writing tips) graphic organizer	A compare-contrast essay focuses on the similarities and differences between at least two objects or ideas. The purpose is to develop the relationship between them and, in the process, explain both in detail.	Compare-contrast how plants and animals respire. Compare-contrast Oedipus and Creon as leaders. Compare-contrast the major elements in Christianity and Buddhism.
Cause-Effect (writing tips) graphic organizer	A cause-effect essay first presents a reason or motive for an event, situation, or trend and then explains its result or consequence.	How and why do plants grow? How and why do totalitarian governments form?
Problem-Solution (writing tips) graphic organizer	A problem-solution essay informs readers about a complex, real-world, philosophical problem (or related problems), followed by actions that could be taken to remedy the problem.	What should be done about global warming? How can the Federal Reserve help keep economic crises from spinning out of control?
Concept-Definition (descriptive writing) (writing tips) graphic organizer	In a concept-definition essay, the writer provides a personal, but still factually complete and correct, understanding of a particular concept or term. The essay conveys what research and experience have taught the writer (what the concept <i>is not</i> is often also part of the definition).	Provide a detailed definition of "democracy." What is figurative language? What is the Greek heroic ideal?
Goal-Action-Outcome (process or procedural writing) (writing tips) graphic organizer	A goal-action-outcome essay either tells the reader how to do something or describes how something is done. Math explanations and science lab reports are good examples of goal-action-outcome writing.	A science lab report An explanation of how to solve a complex, multi-step math problem(s). A business proposal A fitness plan
Proposition-Support (persuasive writing) (writing tips)	A proposition-support essay uses logic, reason, and supporting data to argue that one idea is more legitimate than another. The argument must include sound reasoning and reliable external evidence, stating facts, giving logical reasons,	Are modern values and morals more conservative than those exhibited in the life and times of Henry VIII?

graphic
organizer

using examples, and quoting reliable experts and original sources.

Is racism still a problem in this country?

Tips for writing each text structure

The Compare-Contrast Essay

A compare-contrast essay focuses on the similarities and differences between and among situations, processes, objects, or ideas. The purpose is to develop and explain the relationship between two or more items in order to better understand both.

When choosing similarities and differences, mention those that are the most important, the most descriptive, or the most informative. For example, when comparing-contrasting cars, focus on those elements that truly differentiate them based on their purpose. If a car's purpose is to move people and things from one place to another safely, car color is not that important. However, the difference in the power of the engines would be. Elaborate in such a way that similarities and differences are clear and distinct.

The Cause-Effect Essay

A cause-effect essay first presents a reason or motive for a particular event, situation or trend and then explains the results or consequences of that situation. The study of science and history most often use the cause-effect structure.

When selecting causes and effects, choose those that are the most important, the most descriptive, or the most informative. For example, all ships on the North Atlantic the evening the Titanic sank had to contend with the same weather, ice, and light conditions. Not all ships ran into an iceberg and sank. So, while the weather conditions contributed to the sinking of the Titanic, they were not a primary cause. Similarly, when looking at the effects of an event or situation, we focus on the long-term effects, not the immediate effects. Although 1500 people died the night the Titanic sank, we want to focus on the actions taken after the sinking that contributed the safety of life at sea.

The Problem-Solution Essay

A problem-solution essay addresses a complex philosophical dilemma with no clear right answer, develops criteria for addressing the problem, and informs readers about possible actions that might be taken to remedy the situation. No matter what sort of complex problem is encountered, the chances of solving it improve if it is approached analytically, conscious of the steps one can take and escape routes available if the steps become too rigid.

After describing the problem, the essay should outline a realistic solution. Begin by choosing one possibility. Assess any difficulties involved. Perhaps there are rules and regulations that need to be followed. Perhaps the solution will be prohibitively expensive. Where will the money come from? Discuss the solution in detail. Move onto other possibilities, if required, only after the first solution has been explained in full.

The Concept-Definition Essay

A concept-definition essay provides a personal (but still factually accurate understanding of a particular concept or term. The essay conveys what research, understanding, and experience have taught the writer about the concept or term. What a concept "is not" is often part of the definition.

As the name suggests, the purpose of a concept-definition essay is to define a concept. However, a definition can be developed in a number of ways, some of which mimic other text structures. That is OK. If a definition requires an explanation of cause-effect, so be it. The introduction and conclusion will focus the reader on the concept-definition purpose of the essay.

Here are some rhetorical points about definitions:

Avoid using the phrases "is where" and "is when": A professional sport is when gifted athletes are paid to play a sport as a job. Or A computer virus is where...

- Avoid circular definitions (repeating the defined term within the definition itself). A computer virus is a virus that destroys or disrupts software.
- Avoid using a too narrow definition, one that would unduly limit the scope of the essay. Reggae music is sung on the Caribbean island of Jamaica. In fact, reggae music is sung all over the world, although it was born in Jamaica.

The Goal-Action-Outcome (Process) Essay

A goal-action-outcome essay, or process essay, either tells the reader how to do something or describes how something is done. There are two types of process essays: those that instruct and those that explain or analyze. The goal-action-outcome pattern of organization is especially important in scientific and mathematical writing. For example, it is used to describe biological processes like T-cell lymphocyte production, chemical processes like drug interactions, and technical processes like a colonoscopy. In mathematics it is used to explain how to solve complex, real-world, multi-step math problems.

Clarity is critical. When writing a goal-action-outcome essay, the reader should be able to replicate the process or visualize it well enough to explain it to someone else.

The Proposition-Support Essay

"Proposition" is a fancy word for argument. The purpose of a proposition-support essay is to be as convincing as possible, and to convince readers to accept the proposition as true. A proposition-support essay uses logic, reason, and evidence to show that one idea is more legitimate than another. The argument must always use sound reasoning and solid evidence by stating facts, giving logical reasons, using examples, and quoting reliable experts.

Though the goal is to convince others that a thesis statement is valid, it is important to remember that reasonable people can disagree. The act of writing the essay should help both the writer and the reader to examine their own and others' assumptions and ideas more carefully. Writing a proposition-support essay helps students to weigh evidence, clearly state ideas, fairly consider the claims of the opposition, and justify the position taken.

It is critically important that the tone of a proposition-support essay be reasonable, and that the presentation be factual and believable. Additionally, although this type of essay reflects the writer's opinion, the first-person point of view is not appropriate in analytical essays. The goal is to convince the opposition. In order to write an effective proposition-support essay, the writer must anticipate and overcome objections that an adversary might raise.

A writer, thinker, learner should be able to effectively argue both sides on an argument — no matter his personal opinion or beliefs. In fact, it is good practice to write the opposing argument; it strengthens the writer's understanding of the issue and helps her to intelligently, rather than emotionally, rebut opposition arguments.

About the author

Ms. Stempel has been working in education and education reform for more than 20 years. Prior to founding **Lightbulb Learning Services**, which specializes in the alignment of curriculum to academic standards, literacy development, and classroom/school leadership, she led curriculum development projects for the Education Trust, Edison Schools, and the Council for Basic Education. In addition to experience in education policy, Ms. Stempel has taught literature in the International Baccalaureate program for many years.

About the book

Compose Yourself! A Guide to Critical Thinking & Analytical Writing in Secondary School supports teaching critical thinking and analytical writing at the secondary level, across content area. This resource includes step-by-step processes, many examples, writing checklists, helpful tips, and black-line masters. It is perfect for teachers, parents, and students who want to strengthen their thinking and writing skills, better learn and retain information, and improve overall academic performance. After using this guide, students will be able to write clear, concise, analytical texts.

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Analytical Writing in the Content Areas

By: Amy Rukea Stempel (2010)

Because writing is thinking, the organization of students' writing reflects both the structure of their thinking and the depth of their understanding. Students should be writing in all their classes, explaining what they know and how they know it. Thus, it's essential for content-area teachers to give students meaningful analytical writing assignments. Read **An Introduction to Analytical Text Structures** for more information and graphic organizers to help with writing instruction.

In this article:

- **Introduction**
- **The elements of analytical writing**
- **A note on writing in science classes: The lab report**
- **About the author**
- **About the book**

Introduction

Non-language arts teachers often become nervous when they learn they are supposed to teach writing. This attitude is based on a misunderstanding of what "writing" is. Since writing is thinking made visible, educators in all subject areas teach thinking and all should also use and teach analytical writing. This is critically different than narrative, creative, or literary writing. It is not a science teacher's job to nurture the next James Joyce, but to develop students who can clearly read, think, and write "science."

What does this mean? Non-language arts teachers are NOT responsible for teaching the following:

- **Grammar, usage, mechanics, and spelling (except for subject-specific vocabulary):** It is only fair to students to circle any mistakes a teacher sees in their grammar, usage, mechanics, and spelling so they have some sense of how much work they have to do. However, non-language arts teachers do not have to read closely for those mistakes, do not have to factor it into their grading, and do not have to teach it in their classroom.
- **Style and voice:** Good expository writing exudes style and voice; however, subject-area teachers are not responsible for teaching these skills. The ability to write clearly with style comes with practice across the curriculum, combined with spiraled instruction in the language arts classroom.
- **"Literary" narrative writing:** Artistic, creative writing has no place in the other subject areas. Intellectual creativity is not "anything goes." Truly creative people do not ignore the realities in

which they find themselves. What they do is interpret and make connections between and among facts and disciplines in ways that no one else has done before.

That said, what are non-language teachers responsible for when teaching thinking and writing? They are responsible for those elements of writing that reflect thinking in their subject areas:

- **Thesis statements:** Students need modeling and direct instruction in the kinds of thesis statements that are appropriate in each subject area. This is how students learn the "higher-order" thinking they will need to succeed in that subject area.
- **Structure and organization:** What supporting evidence is relevant to the thesis? How is it communicated in that subject area? How does one judge the appropriateness and relevance of supporting ideas and evidence in a particular subject area?
- **Transition words and phrases:** Transition language communicates to the reader how the ideas are related and how they connect to other knowledge and disciplines. Therefore, transitions need to be explicitly taught and then required in student writing throughout the disciplines.
- **Content and content-area vocabulary:** What are the knowledge and facts upon which students will base their thinking and writing? Of course, subject-area teachers are responsible for determining how best to teach this to students.

The elements of analytic writing

The elements of an analytical essay are present in all non-fiction text structures, though they may be called by different names in different subject areas. The chart below identifies the structural elements — thesis statement, evidence/proof, conclusion, and common text structures — in each of the core subjects.

	Thesis Statement	Evidence/Proof	Conclusion	Common Text Structures
Lit & Lang. Arts		Quotations from text(s)		Compare-Contrast
	Thesis Statement	Examples from and between text (s)	Conclusion	Concept Definition
		Analysis by literary critics		Proposition Support
		Historical examples from primary sources		Cause-Effect
History/ Social Studies	Thesis Statement	Interpretations from historians (secondary sources)	Conclusion	Cause-Effect
	OR		OR	Compare-Contrast
	Historical Argument	Examples of past events or predictions based on prior examples	Historical Interpretation	Concept Definition
				Proposition Support

Science	Hypothesis: What is being proved?	Experimental results of others	Results / Analysis	Goal-Action-Outcome (lab report)
		Students' own experimental results	Conclusion: Was the hypothesis proven or disproven? How and why?	Cause-Effect
				Compare-Contrast
Math	Goal Statement: What is being solved	Calculations	Outcome Statement (one sentence) What is the answer to the problem in context?	Concept Definition
		Logic proofs		Goal-Action-Outcome
		Analysis linked using transitional phrases		Cause-Effect
				Compare-Contrast
				Concept Definition

A note on writing in science classes: The lab report

Science lab reports are a specialized goal-action-outcome text structure:

- **Goal:** To prove or disprove the hypothesis
- **Action:** The materials and procedures required
- **Outcome:** The analysis and conclusion

While other text structures can also be used in science, the lab report is the staple of science education. Whenever students do an experiment they should report their results in this format because this format remains the same from kindergarten through graduate school. The only elements of a lab report that change from year to year are the complexity of the experiments and equipment and whether it is original research or the repeat of a famous experiment. The following is a brief description of what must be included in an acceptable lab report:

1. **Identify yourself** and your partner(s)
2. **Title** of the lab/activity. This is not a creative title; it is descriptive.
3. **Purpose/Introduction** — Why study this problem?
This gives the objective of the activity. What concept or skill was highlighted by this activity? Ask, "Why did we do this activity? What were we supposed to learn or practice?" The introduction states the objective of the experiment and provides the reader with background to the experiment. State the topic of your report clearly and concisely, in one or two sentences. Typically, the introduction states the problem to be solved or the experiment to be performed and explains its purpose and significance. The **hypothesis** sits at the end of the introduction.
4. **Materials** — Describe how and when you did your work, including experimental design (what you did), experimental apparatus (materials), methods of gathering and analyzing data, and types of control. This could also be in the form of a table.

5. **Procedure** — What did you do? How did you do it? Convey a mental picture of what you did. Ordinal phrases are not necessary (i.e., first, second, third, etc.) as the order of events is conveyed by the sentence order in the description. Remember that the audience should be able to repeat your procedure if they wish to do so. Write the description of what was done so that the reader can visualize the set-up. Be sure to include reference to any equipment that you used. A diagram or picture of the apparatus may be helpful but should not replace a good verbal description. Be very specific in your instructions.
6. **Observations & Data (Results)** — What did you find?
Include only those things that you saw, heard, touched, or smelled. Present observations and data with no interpretations or conclusions about what they mean. A well-written and well-organized results section provides the framework for the discussion section.
Include both quantitative (numerical) and qualitative (sensory, **not emotional**) observations. Quantitative observations are best presented in data tables. Qualitative observations may be organized in table form or paragraph form.
The goal is to present the data that was collected in the activity in a clear and easily understood format. Units are necessary for any measurement. If you are unsure about whether something should be included in the data section, ask yourself "How did I get this piece of information? What instrument did I use to collect this information?" If you are giving a value that you did not measure directly (such as density) it should not be included as data.
7. **Analysis of Data (Discussion)** — What does it mean? How does it relate to previous work in the field?
Show any calculations you made using the data collected. Give the formula used for each type of calculation. Show which measurements you are plugging into each calculation and then show the solution. Once you have shown a sample calculation, you may use a data table to show other calculated values of the same type. This is also the appropriate place to explain how the measurements relate to each other, as well as anything that happened during the activity that may have affected the measurements.
8. **Conclusion** — Discuss how the purpose of the activity relates to the analysis of the data and how the analysis can be applied to the real world. In other words, what did you learn? Stick to the facts. Do not comment on whether or not you enjoyed the activity. If the results of the activity were not satisfactory, suggest how the activity could be improved to result in better data. Did the activity raise questions that cannot be answered by the data collected? Describe them. Conclusions are connections that are not obvious on the surface. Also, include any future direction for your results or changes you would make the next time to produce results that are more significant or noteworthy.
9. **Tables and Figures (if required)**
Tables and figures are often used in a report to present complicated data. Use the following guidelines to incorporate them effectively.
 - Tables are referred to as tables, and all other items (graphs, photographs, drawings, diagrams, maps, etc.) are referred to as figures.
 - Numbering: All tables and figures must be numbered. Tables and figures are assigned numbers in the order they are mentioned in the text. Tables and figures are numbered independently of each other (i.e., Table 1 and 2, and then Figure 1 and 2, as well).
 - All tables and figures must have self-explanatory titles so that the reader can understand their content without the text.

About the author

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